

>>
>> Dear BPL complainant,
>>
>> The FCC has received your complaint of interference from a
>> Broadband-over-Power Lines (BPL) to amateur radio. The
>> Commission's policy is that parties who believe they are
>
> receiving
>
>> interference from a BPL system should first refer their
>
> complaint
>
>> to the system operator in order to give the operator an
>> opportunity to remedy the problem.
>>
>> You may have previously received an e-mail notice from me that
>
> the
>
>> Commission has received your complaint. If so, please note that
>
> I
>
>> am sending this message to several complainants because I
>
> recently
>
>> discovered that I have had a problem with my e-mail software.
>> Some of the messages that I sent were, in fact, not transmitted.
>
>
>> I apologize if this message is the second e-mail that you have
>> received acknowledging your complaint.
>>
>> Jim Burtle
>>
>>
>
>

James Burtie

From: Steve Martin
Sent: Thursday, October 07, 2004 10:55 AM
To: Bruce Franca; Alan Scrim; Alan Stillwell; James Burtie; Andrew Leimer
Cc: Rashmi Doshi; William Hurst
Subject: Briarcliff Manor BPL--New complaint

Below is a new email from our Briarcliff Manor complainant and my "Thanks for the update". Bottom line is that the 14 MHz band where he initially complained now looks good, but he is starting to look at other amateur bands and finding interference. His latest log entry on his website is as follows:

"10/06/04 19:30

14.208 heard not discernible interference (remember my ignition noise is about S5) on Dalmeny to Poplar, Pleasantville Road north to Chappaqua Road, across 9A to Fuller, down Fuller, left on Whitson, right on Burns back to Chappaqua. At Chappaqua and North State traffic light I switched bands to 15 meters and S7 QRM appears at 21.340 on an antenna that is nowhere near resonant for this band and proceeds from the intersection clear across Route 100 and even a little way up Carleton where the power lines are underground. So they cleaned up 20 meters by moving the harmful interference to 15 meters. Or maybe it was always there as I was concentrating on 20 meters. Nice try. No cigar."

Steve Martin
Technical Research Branch
FCC Laboratory
*** Non-Public: For Internal Use Only ***

-----Original Message-----

From: Steve Martin
Sent: Thursday, October 07, 2004 10:52 AM
To: 'Alan Crosswell'
Subject: RE: BPL in Briarcliff Manor

Alan,
Thanks for the update

Steve Martin

-----Original Message-----

From: Alan Crosswell [mailto:alan@columbia.edu]
Sent: Wednesday, October 06, 2004 9:52 PM
To: Steve Martin
Subject: Re: BPL in Briarcliff Manor

Steve,

I've updated my weblog at <http://www.columbia.edu/~alan/bpl>. Looks like they've notched the interference on 14 MHz (as well as I can tell with an S5 ignition noise level from my car) but it appears that the interference is there on 21 MHz. This is the first time I've checked on a band other than 14 MHz. I guess I'll be unscrewing the 20 meter antenna and screwing in some of the others in my collection to see where there's still unremediated harmful interference....

/a

Steve Martin wrote:

> Alan,
> Ambient tells me that by the end of the workday today, they should

> have implemented a fix to a device on North State Rd that was not
> properly notched previously. They said that, if you still see
> interference after that time, they would appreciate any information
> you can provide as to where it is strongest.
>
> Thanks,
>
> Steve Martin
> Technical Research Branch
> FCC Laboratory
> 7435 Oakland Mills Road
> Laurel, MD, USA 21046
> (301)362-3052
>
>
> -----Original Message-----
> From: Alan Crosswell [mailto:alan@columbia.edu]
> Sent: Thursday, September 23, 2004 2:11 PM
> To: Steve Martin
> Subject: Re: BPL in Briarcliff Manor
>
>
> Steve,
>
> Last night I saw an improvement on 14 MHz on Dalmeny Road. I saw
> S9+10 QRM on North State road east of Rt 9A. I also have not looked
> on other amatuer bands
> (yet). I do have mobile antennae for 80 and 10 m in addition to the
> 20 m hamstick I usually drive around with. Please let me know when
> Ambient claims
> they've applied the change and I'll drive the route again.
>
> Thanks.
> /a
>
>
> Steve Martin wrote:
>
>>Alan,
>>Our testing in Briarcliff Manor identified two specific problems with
>>notching of the 20-meter amateur band as implemented in the BPL
>>installation at the time of our test. One problem was addressed while
>>we were there, and I understand that the other one has been addressed
>>within the last few days, but has not yet been tested by the provider.
>>Pending hearing the results of such tests from the provider, we are
>>interested in knowing whether your observations indicate an
>
> improvement.
>
>>Thanks
>>
>>Steve Martin
>>Technical Research Branch
>>FCC Laboratory
>>7435 Oakland Mills Road
>>Laurel, MD, USA 21046
>>
>>
>>-----Original Message-----
>>From: Alan Crosswell [mailto:alan@columbia.edu]
>>Sent: Monday, September 20, 2004 7:04 AM
>>To: Steve Martin
>>Cc: Riley Hollingsworth
>>Subject: Re: BPL in Briarcliff Manor
>>
>>
>>Steve,

>>
>>I am still waiting to hear this information from FCC HQ staff. Please
>
>
>>make sure I get a report back ASAP. There is still harmful
>>interference caused by this system, including making it difficult to
>>hear the Hurricane Watch Net
>
> on
>
>>14.325.
>> If this BPL service extends to my street, I fear that I will not be
>>able to participate in emergency communications with low power
>>stations (e.g.
>
> on
>
>>battery) which I otherwise might be able to today.
>>
>>Thanks.
>>/a
>>
>>
>>Steve Martin wrote:
>>
>>
>>>Alan,
>>>Thanks for the update. I also notice that you've updated your log
>>>this week indicating S9+10 dB interference levels in the 20m band.
>>>
>>>Two of us visited Briarcliff Manor last week. The FCC staff members
>>>in charge of BPL at FCC headquarters are out of the office this week,
>>>but I will present our findings to them after their return, and you
>>>can expect to hear from them subsequently.
>>>
>>>Thanks for keeping us informed.
>>>
>>>Steve Martin
>>>Technical Research Branch
>>>FCC Laboratory
>>>*** Non-Public: For Internal Use Only ***
>>>
>>>
>>>-----Original Message-----
>>>From: Alan Crosswell [mailto:alan@columbia.edu]
>>>Sent: Wednesday, August 25, 2004 10:01 AM
>>>To: Steve Martin
>>>Cc: Riley Hollingsworth
>>>Subject: Re: BPL in Briarcliff Manor
>>>
>>>
>>>Steve,
>>>
>>>I'm back from vacation and the harmful interference is still there.
>>>/a
>>>
>>>Alan Crosswell wrote:
>>>
>>>
>>>
>>>>OK, I've posted my latest log including QRM up to S9 covering WWV
>>>>15 MHz experience this morning on the way to the train station. It
>
> seems
>
>>>
>>>>the noise is now worse along North State Rd and better but not

>>>>eliminated at all along Poplar and Dalmeny. I'll also be emailing
>>>
>>>Rich
>>>
>>>
>>>
>>>>Mazzini who said he'd follow up on 7/16 and hasn't.
>>>>
>>>>If you're planning to be in the area to observe, I'd be happy to
>>>>meet with you and show you my mobile station. It's not all that
>>>>impressive. I'll be back from vacation on 8/20.
>>>>
>>>>Thanks.
>>>>/a
>>>
>>>
>

James Burtle

From: dgsvetan@rockwellcollins.com
Sent: Thursday, October 07, 2004 2:51 PM
To: Anh Wride; Alan Stillwell; Riley Hollingsworth; James Burtle
Cc: w1rfi@arrl.org
Subject: BPL Notching Effectiveness



pic22190.jpg (33 KB)



pic01842.jpg (31 KB)



Communication Receiver Character...

All recipients,

I sent the message below to Ms. Wilkerson earlier today. I believe that the experiences with the Alliant Energy BPL trials in Cedar Rapids, IA, provide clear indication that notching of BPL spectrum, as presently done, is not, and will not be, a viable means to mitigate interference to Amateur Radio operators and other users of the HF and low VHF spectrum. Further, keep in mind that these unacceptable interference levels were occurring at distances of about 180 meters from the active BPL node, a far greater distance than will be the case for BPL riding down neighborhood power lines on every residential street and alley, thus likely passing within 10 or 20 meters of Amateur station antennas.

Thank you for your consideration of the information.

Dale Svetanoff

----- Forwarded by Dale G Svetanoff/CedarRapids/RockwellCollins on 10/07/2004 01:26 PM -----

Dale G Svetanoff

10/07/2004 11:55

Svetanoff/CedarRapids/RockwellCollins)
AM

To: Sheryl.Wilkerson@fcc.gov
cc: (bcc: Dale G

Subject: BPL Notching Effectiveness

Dear Ms Wilkerson:

I am the EMC engineer who performed the RFI investigation at the home of Mr. James Spencer, licensee of the Amateur Radio Call WOSR, here in Cedar Rapids, IA. As you probably know, Alliant Energy conducted a BPL trial here in the Spring of this year. Mr. Spencer's ability to conduct two-way HF communications was adversely affected by the BPL signals, and that was the situation which led to my making test readings at his station location.

Briefly, station WOSR is located about 180 meters from the nearest active BPL node of the trial system. Interference from the trial BPL system lasted the entire time that the system was active, which was from late March through late June, 2004. Alliant Energy, and their equipment vendor, Amperion, did employ both frequency notching and system signal transmission level adjustment during the trial period, with varying degrees of effectiveness, and none of it successful at eliminating harmful levels of interference within the assigned Amateur Radio HF bands.

Here are two examples from the Test Report that I wrote on behalf of the Cedar Rapids BPL Steering Committee, and which was submitted to Alliant Energy and the FCC (as part of reply Comments on Docket 04-37):

This first figure shows the spectrum around the 17m Amateur Band, with the plot spanning

17.0 to 19.0 MHz. The 17m Band is denoted by the BLACK line near bottom center of the plot. The BLUE trace was made with the BPL system ON, and the YELLOW trace was made with the BPL system switched off (with due thanks to Alliant Energy). Note that there is a decrease in the blue trace at the lower frequency end of the 17m Band, and I believe that decrease to be an attempt to notch the band. However, please also note that the notch does not extend across the band and that the deepest part of the notch is actually below the 17m Band, making the notch's value worthless. The YELLOW signals are partly due to skywave signals (the traces were taken in late afternoon, when 17m would support skywave propagation) and partly from power line noise, a long standing problem at WOSR.

(Embedded image moved to file: pic22190.jpg)

The figure below shows the area just below and in the 10m Amateur Band. (The 28.0 to 29.7 MHz band is denoted by a black line on the plot.) Again, BLUE trace is BPL ON, and YELLOW is without BPL. In this plot, most of the yellow signals are skywave signals. Please note the following about this plot:

1. The notching missed again. Although most of the 10m band has reduced BPL signal, the lower 100 kHz of the band is receiving full BPL signal strength.
2. The notching is NOT deep enough. Note that most of the yellow signals are of equal or lower amplitude than the notched BPL signals. It is those areas where communications are NOT possible and THAT is harmful interference!
3. In both this plot, and the one above, I added a MAGENTA trace line to the plot. That trace is at a level which represents 1 microvolt of signal in a 50 ohm system, or -107 dBm. The reason I added that trace is because most communication receivers are able to achieve somewhere around a 10 dB signal-to-noise ratio (or better) at 1 microvolt input. That is a very good number for conducting communications. HOWEVER, IF THERE IS ON-CHANNEL INTERFERENCE AT LEVELS OF 1 MICROVOLT OR MORE, THEN NO COMMUNICATIONS ARE POSSIBLE BECAUSE THE USABLE SIGNAL-TO-NOISE HAS BEEN REDUCED TO NEAR 0 dB.

(Embedded image moved to file: pic01842.jpg)

I submit my point #3, above, as the reason for my saying that notching to the levels presently achieved does not work. The in-notch signals would have to be about 20 to 30 dB LESS than they are in the above examples in order to be effective.

Just so that there is no confusion on anyone's part about the above plots, let me state the following:

- A. All plots were taken at station WOSR using Agilent spectrum analyzers and saved onto floppy disc. Date and time stamps, with serial number of the spectrum analyzer, are available for all files.
- B. All plots were made using the antennas and transmission lines of station WOSR - NOT compliance measurement antennas at 3m or 10m from the power lines. The measurement bandwidth of the spectrum analyzers was set at 3 kHz, NOT the compliance measurement bandwidth. That is because communication receivers use bandwidths of between 2 kHz and 3 kHz for voice SSB signal reception. The object of the testing was to duplicate what a communication receiver "sees" when BPL signals are within its tuned range.
- C. The performance of the Agilent spectrum analyzers, at 3 kHz bandwidth, was within one (1) order of magnitude for signal sensitivity with respect to communication grade receivers. All plotted signals were more than 6 dB above the instrument noise floor.

I am attaching a file (extracted from the Cedar Rapids BPL Steering Committee report) that contains performance charts for modern communications receivers, as well as some of years past. Please note either the rated sensitivity levels or the levels at which acceptable signal-to-noise performance is achieved, but ONLY if there is no on-channel interference present. The actions and statements by the Commission to date on the BPL issue have been centered almost solely on radiated emissions compliance of the BPL systems and NOT on interference issues to spectrum users. Those users have communication antennas and receivers, not compliance antennas and spectrum analyzers. The situation at WOSR more

than amply demonstrates why notching does not work and why it will not work in its present form. It also should be an indicator of what will happen when BPL signals are even closer to spectrum users than the 180m separation at this site.

Thank you for your consideration of this information.

Sincerely,

Dale Svetanoff, Amateur Radio Licensee WA9ENA
N.A.R.T.E Certified EMC Engineer, Cert. # EMC-001549-NE

<dgsvetan@rockwellcollins.com>

(319) 295-4928 Office
(319) 462-5984 Home

(See attached file: Communication Receiver Characteristics.doc)

Briarcliff Manor

Steve Burtle

From: Steve Martin

Sent: Thursday, October 07, 2004 11:05 AM

To: 'Ram Rao'

Cc: Yehuda Cern; Aron Viner

Subject: RE: Response to your email

Hi

Thanks for the update. The latest entry on Alan Crosswell's website (<http://www.columbia.edu/~alan/bpl/interference.txt>) is as follows.

10/06/04 19:30

4.208 heard not discernible interference (remember my ignition noise is about S5) on Dalmeny to Poplar, Pleasantville Road north to Chappaqua Road, cross 9A to Fuller, down Fuller, left on Whitson, right on Burns back to Chappaqua. At Chappaqua and North State traffic light I switched bands to 15 meters and S7 QRM appears at 21.340 on an antenna that is nowhere near resonant for this band and proceeds from the intersection clear across Route 100 and even a little way up Carleton where the power lines are underground. So they cleaned up 20 meters by moving the harmful interference to 15 meters. Or maybe it was always there as I was concentrating on 0 meters. Nice try. No cigar."

What is the status of the 15 meter amateur band in your installation?

Thanks

Steve Martin

Technical Research Branch

CCC Laboratory

435 Oakland Mills Road

Laurel, MD, USA 21046

(301)362-3052

-----Original Message-----

From: Ram Rao [mailto:rrao@ambientcorp.com]

Sent: Wednesday, October 06, 2004 11:09 PM

To: Steve Martin

Cc: Yehuda Cern; Aron Viner

Subject: Response to your email

Dear Steve,

While Yehuda is away for the holidays, I am responding to your email to him on Friday, 9/24.

Attached are the results of the measurements taken at Briarcliff Manor (NY) BPL deployment after Ambient's new software was installed. The goal of the latest upgrade is to demonstrate the advanced notching capabilities of our PLC system in the radio amateur bands. The measurements were recorded with Agilent E7403 spectrum analyzer, 32 dB preamplifier and 2 m high portable resonant dipole antenna for 28 - 29.7 MHz and 14.0 - 14.35 MHz bands.

The same equipment with 3 m high loop antenna was used to record the emissions in the 3.5 - 4.0 MHz band.

10/12/2004

The measurements were conducted done at the different locations of the injection devices directly under the power lines.

As it can be seen from attached graphs, the emissions from Ambient BPL system was removed or mitigated by at least 25 dB in the frequency bands, allocated for radio amateurs. Our observations were also confirmed with an ICOM IC-706 amateur transceiver.

Please let us know if you have any questions.

Best regards,

Ram

<<TRACE126_2.pdf>> <<TRACE111_2.pdf>> <<TRACE118_2.pdf>>

Ram Rao

Ambient Corporation	Voice: +1.617.332.0004 Ext. 211
79 Chapel Street	Cell: +1.617.519.5800
Newton, MA 02458	Fax: +1.617.332.7260

The information transmitted is intended only for the person or entity to which it is addressed and may contain confidential and/or privileged material. Any review, retransmission, dissemination or other use of, or taking of any action in reliance upon, this information by persons or entities other than the intended recipient is prohibited. If you received this in error, please contact the sender and delete the material from any computer.

James Burtie

From: Steve Martin
Sent: Thursday, October 07, 2004 10:55 AM
To: Bruce Franca; Alan Scime; Alan Stillwell; James Burtie; Andrew Leimer
Cc: Rashmi Doshi; William Hurst
Subject: Briarcliff Manor BPL--New complaint

Below is a new email from our Briarcliff Manor complainant and my "Thanks for the update". Bottom line is that the 14 MHz band where he initially complained now looks good, but he is starting to look at other amateur bands and finding interference. His latest log entry on his website is as follows:

"10/06/04 19:30

14.208 heard not discernible interference (remember my ignition noise is about S5) on Dalmeny to Poplar, Pleasantville Road north to Chappaqua Road, across 9A to Fuller, down Fuller, left on Whitson, right on Burns back to Chappaqua. At Chappaqua and North State traffic light I switched bands to 15 meters and S7 QRM appears at 21.340 on an antenna that is nowhere near resonant for this band and proceeds from the intersection clear across Route 100 and even a little way up Carleton where the power lines are underground. So they cleaned up 20 meters by moving the harmful interference to 15 meters. Or maybe it was always there as I was concentrating on 20 meters. Nice try. No cigar."

Steve Martin
Technical Research Branch
FCC Laboratory
*** Non-Public: For Internal Use Only ***

-----Original Message-----

From: Steve Martin
Sent: Thursday, October 07, 2004 10:52 AM
To: 'Alan Crosswell'
Subject: RE: BPL in Briarcliff Manor

Alan,
Thanks for the update

Steve Martin

-----Original Message-----

From: Alan Crosswell [mailto:alan@columbia.edu]
Sent: Wednesday, October 06, 2004 9:52 PM
To: Steve Martin
Subject: Re: BPL in Briarcliff Manor

Steve,

I've updated my weblog at <http://www.columbia.edu/~alan/bpl>. Looks like they've notched the interference on 14 MHz (as well as I can tell with an S5 ignition noise level from my car) but it appears that the interference is there on 21 MHz. This is the first time I've checked on a band other than 14 MHz. I guess I'll be unscrewing the 20 meter antenna and screwing in some of the others in my collection to see where there's still unremediated harmful interference....

/a

Steve Martin wrote:

> Alan,
> Ambient tells me that by the end of the workday today, they should

> have implemented a fix to a device on North State Rd that was not
> properly notched previously. They said that, if you still see
> interference after that time, they would appreciate any information
> you can provide as to where it is strongest.
>
> Thanks,
>
> Steve Martin
> Technical Research Branch
> FCC Laboratory
> 7435 Oakland Mills Road
> Laurel, MD, USA 21046
> (301)362-3052

>
>
> -----Original Message-----
> From: Alan Crosswell [mailto:alan@columbia.edu]
> Sent: Thursday, September 23, 2004 2:11 PM
> To: Steve Martin
> Subject: Re: BPL in Briarcliff Manor
>
>
> Steve,
>
> Last night I saw an improvement on 14 MHz on Dalmeny Road. I saw
> S9+10 QRM on North State road east of Rt 9A. I also have not looked
> on other amatuer bands
> (yet). I do have mobile antennae for 80 and 10 m in addition to the
> 20 m hamstick I usually drive around with. Please let me know when
> Ambient claims
> they've applied the change and I'll drive the route again.
>
> Thanks.
> /a
>
>
> Steve Martin wrote:
>
>>Alan,
>>Our testing in Briarcliff Manor identified two specific problems with
>>notching of the 20-meter amateur band as implemented in the BPL
>>installation at the time of our test. One problem was addressed while
>>we were there, and I understand that the other one has been addressed
>>within the last few days, but has not yet been tested by the provider.
>>Pending hearing the results of such tests from the provider, we are
>>interested in knowing whether your observations indicate an
>
> improvement.
>
>>Thanks
>>
>>Steve Martin
>>Technical Research Branch
>>FCC Laboratory
>>7435 Oakland Mills Road
>>Laurel, MD, USA 21046
>>
>>
>>-----Original Message-----
>>From: Alan Crosswell [mailto:alan@columbia.edu]
>>Sent: Monday, September 20, 2004 7:04 AM
>>To: Steve Martin
>>Cc: Riley Hollingsworth
>>Subject: Re: BPL in Briarcliff Manor
>>
>>
>>Steve,

>>
>>I am still waiting to hear this information from FCC HQ staff. Please
>
>
>>make sure I get a report back ASAP. There is still harmful
>>interference caused by this system, including making it difficult to
>>hear the Hurricane Watch Net
>
> on
>
>>14.325.
>> If this BPL service extends to my street, I fear that I will not be
>>able to participate in emergency communications with low power
>>stations (e.g.
>
> on
>
>>battery) which I otherwise might be able to today.
>>
>>Thanks.
>>/a
>>
>>
>>Steve Martin wrote:
>>
>>
>>>Alan,
>>>Thanks for the update. I also notice that you've updated your log
>>>this week indicating S9+10 dB interference levels in the 20m band.
>>>
>>>Two of us visited Briarcliff Manor last week. The FCC staff members
>>>in charge of BPL at FCC headquarters are out of the office this week,
>>>but I will present our findings to them after their return, and you
>>>can expect to hear from them subsequently.
>>>
>>>Thanks for keeping us informed.
>>>
>>>Steve Martin
>>>Technical Research Branch
>>>FCC Laboratory
>>>*** Non-Public: For Internal Use Only ***
>>>
>>>
>>>-----Original Message-----
>>>From: Alan Crosswell [mailto:alan@columbia.edu]
>>>Sent: Wednesday, August 25, 2004 10:01 AM
>>>To: Steve Martin
>>>Cc: Riley Hollingsworth
>>>Subject: Re: BPL in Briarcliff Manor
>>>
>>>
>>>Steve,
>>>
>>>I'm back from vacation and the harmful interference is still there.
>>>/a
>>>
>>>
>>>Alan Crosswell wrote:
>>>
>>>
>>>
>>>>OK, I've posted my latest log including QRM up to S9 covering WWV
>>>>15 MHz experience this morning on the way to the train station. It
>
> seems
>
>>>
>>>>the noise is now worse along North State Rd and better but not

>>>>eliminated at all along Poplar and Dalmeny. I'll also be emailing
>>>
>>>Rich
>>>
>>>
>>>
>>>>Mazzini who said he'd follow up on 7/16 and hasn't.
>>>>
>>>>If you're planning to be in the area to observe, I'd be happy to
>>>>meet with you and show you my mobile station. It's not all that
>>>>impressive. I'll be back from vacation on 8/20.
>>>>
>>>>Thanks.
>>>>/a
>>>
>>>
>

Alan Stillwell

From: James Burtle
Sent: Wednesday, March 17, 2004 7:44 AM
To: Alan Stillwell; Anh Wride; Bruce Franca; Bruce Romano; George Dillon
Subject: FW: Resolution of BPL Interference Complaint from Mr. Vincent

-----Original Message-----

From: Richenbacher, Alan G [mailto:agrichenbacher@pplweb.com]
Sent: Tuesday, March 16, 2004 4:31 PM
To: James Burtle
Subject: Re: Resolution of BPL Interference Complaint from Mr. Vincent Horvath

Mr. Burtle,

Upon learning from you of an RF interference complaint relating to PPL Telcom's BPL equipment on 2/17/2004 initiated by Mr. Vincent Horvath, an amateur radio operator located in Bethlehem, PA, PPL Telcom along with our technology provider, Amperion, took immediate steps to contact Mr. Horvath and begin a process to resolve his complaint. The frequencies used by PPL Telcom's BPL equipment in Mr. Horvath's vicinity were checked and those found to overlap with the amateur radio bands were subsequently adjusted to avoid all amateur radio frequencies. Particular attention was paid to the 10, 12 and 17 meter bands in which Mr. Horvath had reported interference. Mr. Horvath and I were in periodic email contact during the period of time in which these frequency adjustments were being performed.

In a March 1, 2004, email to Mr. Horvath I reported PPL Telcom's frequency adjustments had been completed and explained that I expected that this action should eliminate any interference caused by our BPL equipment. I have not heard from Mr. Horvath since that date and, therefore, consider this matter to be resolved.

Alan Richenbacher
PPL Telcom, LLC
ETN: 220-3779 or Outside: 610-774-3779
Mobile: 610-703-1395
Mobile Text: 6107031395@mobile.att.net

The information contained in this message is intended only for the personal and confidential use of the recipient.

Penn Yan BPL Radio Interference Report

Richard A. Ayers

KB2DMK

4/21/2004

Preface

I was approached by the Village of Penn Yan to assist them with reviewing the BPL test site in the Village for potential radio interference. I offered my services to work with the Village and the BPL Company to evaluate the BPL system and avoid any problems.

Company conducting the test:

DVI Data Ventures Inc.

Mark Burling

10697 Del Parado Dr. E.

Largo, FL 33774

BPL Equipment used:

Amperion

Two Tech Dr

Andover, MA 01810

Test Site: Liberty Street/Rt 14A, Court Street, Burns Terrace to Elm Street.

Pre Deployment Test 12/3/03:

A spectrum scan was completed at 3 test sites within the proposed deployment area to document any pre existing radio interference in the area. The Radio equipment used was a Tektronix spectrum analyzer, Icom 735 receiver with a super Antenna mounted on a Chevy Pickup.

Results:

Elm/Burns site - Electrical noise, Noise peaks at 10.5 MHz, Background noise levels were generally below S1 on the receivers signal strength indicator. A single instance of electrical noise at S9 was observed.

Burns/Court site - No documented interference, Noise floor generally below S1

Yates County Building - No documented interference, Noise floor generally below S2

Post Deployment Test (12/27/03 & 4/15/04):

The initial deployment of the BPL system had many problems that caused the system not to function properly. This lead to a delay in completing final testing of the system. Five test sites were sampled and compiled to form this report. The test results are from sample points 30 meters from the power lines. The radio equipment used was a Tektronix spectrum analyzer. Icom 735 receiver with a ham stick antenna mounted on a Chevy Pickup.

The interference assessment for the Penn Yan BPL trial is as follows;

Harmful interference was detected at all five sample sites in the BPL trial area. Harmful radio interference is defined as radio interference that would severely degrade or completely eliminate an incoming radio signal. The BPL interference started at 16.493 MHz and was observed through 38.000 MHz. This area of the radio spectrum includes the 10, 12, 15 and 17 meter Amateur Radio bands and the 11 meter CB band.

The BPL system is compromising any radio communications in this area. I have concentrated all testing efforts at 30 meters from the lines so I have not determined what the zone of interference is. This should be completed and mapped to document a potentially larger scale problem.

If a FCC licensed amateur radio operator lived within or at close proximity to the BPL system, radio communication on the effected bands would no longer be possible. This would render normal or emergency communications useless in the BPL area.

The BPL trial is also causing harmful radio interference to the 11 meter CB band. Not only is general 11 meter communication disrupted but Liberty Street is State Route 14A which is a major truck route through Penn Yan, thus a major concern for CB traffic in the Village.

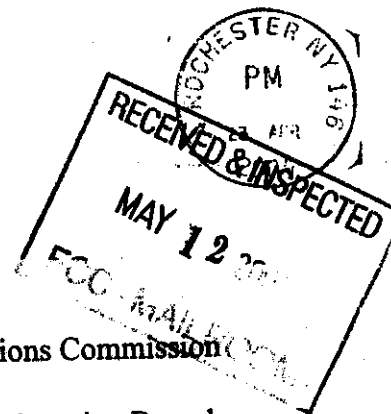
An additional concern to the amateur radio community is the potential problems that amateur radio transmission may cause to the BPL system. This system when deployed had many issues with electrical noise. The BPL system has not been tested properly for these problems. Amateur radio operators are licensed for primary use of the ham frequency allocations. BPL is not; however the community would not understand this if internet use was affected by amateur radio.

These results have been compiled over a 6 month period. I have also completed a review of an Amperion BPL site in Allentown, PA to use as a site reference. I will also be filing an inference report on that BPL site

This Report will be filed with the FCC, ARRL Yates County and The Village of Penn Yan.

Submitted by
Richard A. Ayers
KB2DMK

Richard A. Ayers
2590 Ayers Road
Penn Yan, NY 14527



Federal Communications Commission
James R. Burtle
Chief, Experimental Licensing Branch
Room 7-A267
445 12th Street SW
Washington, DC 20024

20024+2101



Report of Harmful Interference From a Broadband Over Power Line Trial or Deployment

Name of complainant: Village of Penn Yan Trial _____

Call sign (if applicable): KB2DMK _____

Station location: Mobil _____

Mailing address (if different): 2590 Ayers Road _____

City, State, Zip: Penn Yan, NY 14527 _____

Telephone: 315-536-7570 _____ Email: rayers@linkny.com _____

Description of Interference: DVI/Amperion BPL deployment

see enclosed report _____

Description of station: Icom 735, _____

Receiver(s) affected: Icom 735 _____

Antenna type: Mobil vertical whip _____

Antenna location: center mount on the truck _____

Distance of antenna from own house (feet): n/a _____

Distance of antenna from neighboring houses (feet): n/a _____

Distance of antenna from power distribution line or equipment (feet): 100 _____

Log of interference:

Date	Time	Frequency	Receive Mode	Interfering signal strength	Description
4/15/04	9:00pm	16.493-38.000	Am	S1-S9	Affected ham bands 10, 12, 15 and 17 + 11 meter band Some bands completely unusable due to BPL Noise

Alan Stillwell

From: James Burtle
Sent: Wednesday, March 31, 2004 11:22 AM
To: 'rkelly@ssd.com'
Cc: Ira Keltz; Bruce Franca; Bruce Romano; Alan Scime; Alan Stillwell; Anh Wride
Subject: FW: Interference Complaint

Mr. Kelly,

This is an interference complaint filed against the Ambient Corporation license. I need to know the name of the appropriate contact person in this system. I will be asking this person to resolve this complaint. He/she will also be asked to respond to me explaining what was done to resolve the complaint and to contact the complainant.

Jim Burtle
Chief, Experimental Licensing Branch
Office of Engineering and Technology
Federal Communications Commission

-----Original Message-----

From: Dave Hallidy [mailto:k2dh@frontiernet.net]
Sent: Monday, March 29, 2004 8:59 PM
To: Anh Wride; Alan Stillwell; Riley Hollingsworth; James Burtle
Subject: Interference Complaint

My name is David Hallidy
My address is: 1027 Rousseau Drive, Webster, NY 14580
My telephone number (day or night) is: (585) 872-0942

With this email, I am registering an official complaint of interference to the operation of my mobile Amateur Radio Station. My FCC-issued callsign is: K2DH, Amateur Extra Class.

On March 27, 2004 I was travelling through the city of Penn Yan, New York and attempting to operate on frequencies in the 15 and 10 meter Amateur bands. I encountered very high levels of noise on both those bands, and upon further investigation, also on the Amateur 17 and 12 meter bands. The levels of interference I observed were, at times, as strong, or stronger than an S9 level as indicated on the Signal Strength Meter in my Yaesu model FT-100D transceiver. At this level, the stations I was attempting to contact were essentially unreadable, even though they were at times as strong as S9 (which corresponds to a level greater than 50dB above the noise floor).

The character of the noise is interesting, in that it isn't confined to a particular frequency or group of frequencies, but instead, occupies the entire spectrum from somewhere below 18Mhz to greater than 30MHz. I found this while tuning the receiver trying to pinpoint the source of the interference. The noise seems to consist of a series of closely-spaced tones or carriers, with intermittent bursts of digital modulation on them. After some investigation, I concluded that the noise was emanating from the overhead power lines in one part of the city. My conclusion, after further discussion of this with other Amateurs, is that this interference was caused by the Amperion Broadband over Power Lines (BPL) system installed in part of the city of Penn Yan. I could not use the 17, 15, 12, or 10 meter ham bands until I was at least 3/4 mile away from the strongest point of the interference, which by my measurements is on Liberty Street in Penn Yan.

I would like to discuss this interference with you, so that the problem may be resolved and the interference stopped before it causes shutdown of a vital communications service in Penn Yan, putting life and/or property at possible risk.

I can be reached at the telephone number indicated at the top of this email, by email, or by regular postal mail at the above indicated address.

Alan Stillwell

From: Dave Hallidy [k2dh@frontiernet.net]
Sent: Monday, March 29, 2004 8:59 PM
To: Anh Wride; Alan Stillwell; Riley Hollingsworth; James Burtle
Subject: Interference Complaint

My name is David Hallidy
My address is: 1027 Rousseau Drive, Webster, NY 14580
My telephone number (day or night) is: (585) 872-0942

With this email, I am registering an official complaint of interference to the operation of my mobile Amateur Radio Station. My FCC-issued callsign is: K2DH, Amateur Extra Class.

On March 27, 2004 I was travelling through the city of Penn Yan, New York and attempting to operate on frequencies in the 15 and 10 meter Amateur bands. I encountered very high levels of noise on both those bands, and upon further investigation, also on the Amateur 17 and 12 meter bands. The levels of interference I observed were, at times, as strong, or stronger than an S9 level as indicated on the Signal Strength Meter in my Yaesu model FT-100D transceiver. At this level, the stations I was attempting to contact were essentially unreadable, even though they were at times as strong as S9 (which corresponds to a level greater than 50dB above the noise floor).

The character of the noise is interesting, in that it isn't confined to a particular frequency or group of frequencies, but instead, occupies the entire spectrum from somewhere below 18Mhz to greater than 30MHz. I found this while tuning the receiver trying to pinpoint the source of the interference. The noise seems to consist of a series of closely-spaced tones or carriers, with intermittent bursts of digital modulation on them. After some investigation, I concluded that the noise was emanating from the overhead power lines in one part of the city. My conclusion, after further discussion of this with other Amateurs, is that this interference was caused by the Amperion Broadband over Power Lines (BPL) system installed in part of the city of Penn Yan. I could not use the 17, 15, 12, or 10 meter ham bands until I was at least 3/4 mile away from the strongest point of the interference, which by my measurements is on Liberty Street in Penn Yan.

I would like to discuss this interference with you, so that the problem may be resolved and the interference stopped before it causes shutdown of a vital communications service in Penn Yan, putting life and/or property at possible risk.

I can be reached at the telephone number indicated at the top of this email, by email, or by regular postal mail at the above indicated address.

Thank you for your immediate attention to this matter.

Sincerely,
David V. Hallidy
FCC-issued callsign: K2DH
email address: k2dh@frontiernet.net

Alan Stillwell

From: James Burtle
Sent: Wednesday, April 21, 2004 3:07 PM
To: Alan Scrimie; Alan Stillwell; Bruce Franca; Bruce Romano; Anh Wride
Subject: FW: BPL Complaint

-----Original Message-----

From: Loren James [mailto:lawdog14@adelphia.net]
Sent: Wednesday, April 21, 2004 1:02 PM
To: James Burtle
Subject: Re: BPL Complaint

Thanks for taking the time to reply ,I appreciate that. There was a meeting last night with a rep from DVI Data Ventures Inc. I await to see any changes as He stated they had been trying to correct the problem for some time.Loren

----- Original Message -----

From: "James Burtle" <James.Burtle@fcc.gov>
To: "Loren James" <lawdog14@adelphia.net>
Sent: Wednesday, April 21, 2004 11:44 AM
Subject: RE: BPL Complaint

Please send your complaints to the system operator first. He/she needs to have an opportunity to fix the problem. At this point we will note your complaint but will take no action pending the results of the system operator's efforts.

-----Original Message-----

From: Loren James [mailto:lawdog14@adelphia.net]
Sent: Wednesday, April 21, 2004 10:11 AM
To: James Burtle
Subject: BPL Complaint

Right now in the Village of Penn Yan, NY BPL is being tested and the village board is planning to make this a 10-year deal. I know that the technology must move on but at what price. I cannot go to this area right now and operate on a licensed Amateur Radio frequency from 18.068 up thru 30.0 MHz. I know that there is a problem all thru this area. As a licensed amateur I have a right by the FCC to operate and not be interfered with while doing so. This BPL system is a problem, and I do not refer to normal noise floor type noise, I am speaking of band obliterating 20 + noise (near full strength) figures. I urge you to step up and help us to improve this system or pressure them to turn it off till they make alterations to it.Or send your own person up to this area to make a few tests. Thank you. Loren James N2LSJ

James Burtie

From: Dave Hallidy [k2dh@frontiernet.net]
Sent: Thursday, May 06, 2004 11:53 PM
To: James Burtie
Subject: RE: Complaint of Interference Lodged 03/28/04

Turned off



Interference
Complaint

Dear Mr. Burtie-

On Sunday, March 28, 2004 I lodged a formal complaint of interference I experienced to my Amatur Radio station while I was mobile in Penn Yan, NY on March 27. I have to date received no response from the FCC with regard to this complaint. Can you please advise me of the status of my complaint?

I have attached herewith a copy of the email complaint I sent to you and other FCC officials on March 29, 2004 for your reference.

I would appreciate a response so that I know that my complaint has been received and appropriate action is being taken. Subsequent to my visit on March 27, I visited Penn Yan again on April 20, and the interference was still present.

Thank you for your attention to this matter.

Sincerely,
David Hallidy

James Burtie

From: Dave Hallidy [k2dh@frontiernet.net]
Sent: Monday, March 29, 2004 8:59 PM
To: Anh Wride; Alan Stillwell; Riley Hollingsworth; James Burtie
Subject: Interference Complaint

My name is David Hallidy
My address is: 1027 Rousseau Drive, Webster, NY 14580
My telephone number (day or night) is: (585) 872-0942

With this email, I am registering an official complaint of interference to the operation of my mobile Amateur Radio Station. My FCC-issued callsign is: K2DH, Amateur Extra Class.

On March 27, 2004 I was travelling through the city of Penn Yan, New York and attempting to operate on frequencies in the 15 and 10 meter Amateur bands. I encountered very high levels of noise on both those bands, and upon further investigation, also on the Amateur 17 and 12 meter bands. The levels of interference I observed were, at times, as strong, or stronger than an S9 level as indicated on the Signal Strength Meter in my Yaesu model FT-100D transceiver. At this level, the stations I was attempting to contact were essentially unreadable, even though they were at times as strong as S9 (which corresponds to a level greater than 50dB above the noise floor).

The character of the noise is interesting, in that it isn't confined to a particular frequency or group of frequencies, but instead, occupies the entire spectrum from somewhere below 18Mhz to greater than 30MHz. I found this while tuning the receiver trying to pinpoint the source of the interference. The noise seems to consist of a series of closely-spaced tones or carriers, with intermittent bursts of digital modulation on them. After some investigation, I concluded that the noise was emanating from the overhead power lines in one part of the city. My conclusion, after further discussion of this with other Amateurs, is that this interference was caused by the Amperion Broadband over Power Lines (BPL) system installed in part of the city of Penn Yan. I could not use the 17, 15, 12, or 10 meter ham bands until I was at least 3/4 mile away from the strongest point of the interference, which by my measurements is on Liberty Street in Penn Yan.

I would like to discuss this interference with you, so that the problem may be resolved and the interference stopped before it causes shutdown of a vital communications service in Penn Yan, putting life and/or property at possible risk.

I can be reached at the telephone number indicated at the top of this email, by email, or by regular postal mail at the above indicated address.

Thank you for your immediate attention to this matter.

Sincerely,
David V. Hallidy
FCC-issued callsign: K2DH
email address: k2dh@frontiernet.net

From: James Burtle
Sent: Wednesday, May 05, 2004 10:50 AM
To: 'William Rogers'
Subject: RE: Penn Yan BPL Complaint
Mr. Rogers,

Thank you for your e-mail. Before sending your complaints to the FCC, please send your complaints to the system operator to give him/her an opportunity to fix the problem. We will note your complaint, but plan to take no action at this time.

Sincerely,

Jim Burtle

-----Original Message-----

From: William Rogers [mailto:brogers@rochester.rr.com]
Sent: Tuesday, April 27, 2004 6:54 PM
To: James Burtle
Subject: Penn Yan BPL Complaint

My name is William S. Rogers
My address is: 104 Judson Street, Webster, NY 14580
My telephone number is: (585) 265-1211

With this email, I am registering an official complaint of interference to the operation of my mobile Amateur Radio Station. My FCC-issued callsign is: K2TER, Amateur Advanced Class.

On April 19, 2004 I was parked in a P&C Food Market parking lot, 321 Liberty Street in Penn Yan, New York and attempting to operate on frequencies in the 10 meter Amateur band. I encountered extremely high levels of noise across the CW and SSB portion of the band, upon further investigation, I found strong carriers with signs of modulation covering the entire spectrum with no gaps from below 27MHz to 30.7MHz. The interference was constant. I was using a based loaded vertical antenna on my car and operating my Kenwood TS690 transceiver at the time. The levels of interference I observed when in FM mode were greater than +60dB over S9. This is the limit of indication on my S-meter. The interference subsided as I drove away from this area so I do not think it was an internal problem with my radio.

I think you would agree that this type of interference needs to be identified and eradicated before it causes interruption of a vital communications service, putting life and/or property at risk.

Thank you, in advance, for your timely attention to this matter.

Sincerely,
William S. Rogers
FCC-issued callsign: K2TER
email address: k2ter@rochester.rr.com